

Ozone & Air Quality



What is Ozone and where does it come from?

Ozone is a colorless and odorless gas that contributes to poor air quality and has serious health effects. It occurs both naturally and as a product of human made pollution.



Ground level ozone is created by a reaction between:

- Volatile Organic Compounds (VOCs)
- Nitrogen Oxides (NOx)
- Sunlight

Sources of VOCs and NOx include:

- Industrial facilities
- Chemical solvents
- Vehicle gas vapors
- Power plants



How can Michigan decision makers reduce ozone levels?

The Great Lakes area is prone to high levels of ozone because of lake and land breezes. There are currently three areas in West Michigan which do not meet ozone air quality standards. These actions can help reduce ozone levels:

- 1 Incrementally reduce high-emitting polluting vehicles.
- 2 Upgrade poorly controlled emission sources such as power plants and major boilers, or phase them out.
- 3 Increase transit options using efficient buses, bus rapid transit and trains, which also have the benefit of reducing traffic congestion.
- 4 Require facilities to reduce VOC emissions by making process changes or implementing air pollution control technologies.

When is Ozone beneficial? When is it harmful?

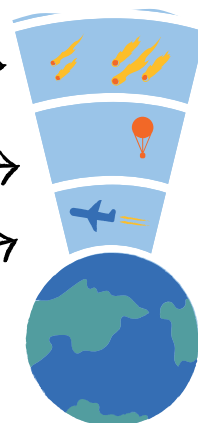
Ozone in the Stratosphere

Ozone in this layer is natural and absorbs harmful sun rays. Human made chemicals can break down ozone in this layer, leaving us exposed to rays from the sun. This is commonly referred to as the "ozone hole".

Mesosphere

Stratosphere

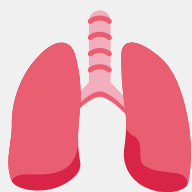
Troposphere



Ozone in the Troposphere

This is the layer in which we live and breathe in. Ozone in the troposphere, also known as ground level ozone, is created through reactions of manmade and naturally occurring pollutants. It can decrease visibility and cause serious health effects. Excess ozone from this layer does not travel to other layers.

What are some of the health risks of ozone exposure?



- Difficulty breathing
- Lung-related emergency room visits
- Asthma
- Chronic obstructive pulmonary disorder (COPD)



- Premature birth and smaller babies at birth
- Brain damage and other birth defects
- High blood pressure during pregnancy

Who is most likely to be affected?

- People who are active outdoors
- Older adults
- Outdoor workers
- People with asthma or other pre-existing conditions
- Children



How is ozone measured?

The ozone "design value" indicates the presence of ozone in the air to determine whether ozone levels are below the National Ambient Air Quality Standard (NAAQS). Ozone design values are determined by averaging readings on ozone monitors over long periods of time.

As wildfires increase, they are likely to influence the ozone design value.



Air Quality Action Days for Ozone

Ozone action days are days when the levels of ozone are higher than what is considered healthy for certain groups. Areas with ozone design values below the NAAQS can still have Ozone Action Days.

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CAPHE Project Partners

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- Healthy Environment Partnership
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